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ABSTRACT

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THE PREDICTION OF CONSUMER BUYING INTENTIONS: A COMPARATIVE STUDY OF THE PREDICTIVE EFFICACY OF TWO ATTITUDINAL MODELS

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Abstract

The role of attitudes in the conduct of buyer behavior is examined in the context of two competiting models of attitude structure and attitude-behavior relationship. Specifically, the objectives of the study were to compare the Fishbein and Sheth models on the criteria of predictive as well as cross validities. Data on both the models were obtained simultaneously from 243 respondents in the Champaign-Urbana area. The results show that the Sheth model has high predictive validity and cross-validity, while the Fishbein model has lower predictive validity but high cross validity. The comparative findings on the models were discussed in terms of their operationalization of the underlying constructs. And finally, the importance of other relevant moderator variables in improving the consistency of relationship between attitudes and behavior were shown.

THE PREDICTION OF CONSUMER BUYING INTENTIONS: A COMPARATIVE STUDY OF THE PREDICTIVE EFFICACY OF TWO ATTITUDINAL MODELS[1]

Prediction of behavior based on attitudinal and other social-context related variables has been the concern of both social and consumer psychologists. Several competing models proposing conceptual links between a number of such variables and occurrences of a given behavioral act have been recently proposed. Fishbein (1967), for example in extending Dulany's (1967) theory of propositional control to social behavior has formulated a model for the prediction of behavioral intention based on two major determinants: 1) attitude of the individual toward the specific act in question, 2) his social normative beliefs pertaining to the given behavioral act weighted by his motivation to comply with such relevant beliefs. Further, it has been assumed that since most social behaviors are under volitional control Ryan (1970), knowledge of an individual's behavioral intention is a necessary prerequisite in the determination of the given behavior. Rokeach (1968) in his formulation of the behavioral intention emphasized the importance of situational aspects and distinguished between attitude-toward the object and attitude-toward the situation. Triandis (1975) has proposed a model leading to the probability of occurrence of a specific behavior toward an object based on three major constructs: 1) habit of the individual in relation to the object in question, 2) his behavioral intention based on norms, roles, self-image and general intentions, 3) the facilitation factors and/or ability of the individual to perform the specific act. Working within a behavior theory framework, Sheth (1971) developed a model in which a specific choice behavior with respect to an object is determined by 1) affect towards the object, 2) unexpected events or situational factors and 3) behavioral intention which is itself determined by multidimensional evaluative beliefs (attitudes)

toward the object, social stereotype notions about the specific choice behavior, past experience with respect to the object (i.e., habit) and situational events.

While a host of other models have been also suggested, efficacy of these models and their theoretical underpinnings continue to be extensively researched. In fact, a recent series of papers published in social psychology (Ajzen and Fishbein, 1969, 1970, 1972; Fishbein, 1972) as well as in consumer psychology (Sampson and Harris, 1970; Cowling 1971, Tuck 1971, Bass and Talarzyk 1972; etc.) provide evidence for the use of Fishbein's model in the prediction of behavioral intentions. While research of this nature is useful and does provide relevant structural information relating to the model under investigation, very little is known about the efficacies of the models compared to each other.

The problem becomes even more complicated when one considers the criticisms directed at the expectancy-value models (Day, 1972; Sheth and Tuncalp, 1974; Wilkie and Pessemier, 1973). In addition, some theorists in social psychology (Rokeach, 1968; Triandis, 1975) have argued for the incorporation of other relevant factors in the prediction of behavioral intentions. Similar suggestions following the situationalism tradition in psychology have been advanced by researchers in the area of consumer psychology (Howard and Sheth, 1969; Sandell, 1968; Sheth, 1971; Sheth and Raju, 1973).

Therefore, there is need for comparative research on existing attitudinal models based on relevant criteria. In fact, it has been argued that it is difficult to establish superiority for any model unless a comparative study under the same setting, on the same issue and on the same group of subjects

has been carried out (Sheth, 1972). Several criteria have been suggested for comparing relative effectiveness of a number of competing models in a given area:

1) the level of descriptive power inherent in the model i,e to what extent the model adequately describes the phenomenon being studied.

2) the level of explanation the model is able to provide for the phenomenon under investigation i,e the facts adduced by the explanation must be relevant to the point at issue - that is the phenomenon (Zaltman, Pinson and Angelmar 1973).

3) the level of prediction the model aims for i,e to what extent the model allows us to make deductions from known to unknown events within a conceptually static system (Schuessler, 1968). A frequently encountered example would be the use of regression analysis to predict buyer behavior from a consideration of a number of other independent predictors.

4) the level of prescription the model is able to establish for the phenomenon i,e the ability of the model to ear-mark and prescribe the degree of interconnectedness of the phenomenon under investigation with other related events (Kaplan, 1964).

The present study focuses on the nature of predictive efficacies (criterion 3) of two attitudinal models (i,e Fishbein 1967 and Sheth 1974) in the prediction of consumer buying intentions. Specifically, the study addresses to the issue of predictive and cross validation of the two models by controlling for the outside influences. The data for the two models reported in this study have been collected on the same subjects, at the same time and under identical settings. Our reasons for delimiting the scope of the study to the criterion of predictive efficacy are as follows:

1) It is beyond the scope of this study to compare the two models on

all of the above criteria.

2) The criteria of predictive as well as prescriptive efficacy are deemed more relevant in the comparison of attitudinal models. However, a systematic comparison on prescriptive criteria would call for a longitudinal study. Since the present study is cross-sectional, we focus only on the issue of relative predictive efficacies of the two models. Objectives of the study are:

1) A comparative analysis of the prediction of consumer buying intentions with respect to a durable consumer product from the two models under investigation.

2) Predictive validation of the results by comparing the correlation coefficient obtained from the total sample with the correlation coefficient obtained from the analysis sample. A model is considered valid on this criterion if the percentage of explained variance on the criterion is quite large in both the total as well as in the representative sample. However, by means of predictive validation alone it is hard to establish the generalizability of the result to other samples. Consequently, the study has been extended to cross validation of the results.

3) Cross validation of the results would require invariance of the correlation coefficient from the 'derivation sample' to the validation 'sample'. These two samples are obtained by randomly dividing the total sample of respondents into two groups by split-half method.

This procedure is described in some detail at a later section of this paper.

THE THEORY

A brief description of the two models are provided below. Detailed descriptions of the models are provided in Fishbein (1967, 1972) and Sheth (1974).

Fishbein Model of Attitude Structure and Behavioral Prediction

As noted earlier, according to Fishbein (1967) there are two major factors that determine behavioral intention. The first of these is termed attitude toward the act in question and the second is a multiplicative component consisting of an individual's social normative beliefs and his motivation to comply with these beliefs. These two factors are weighted differentially depending upon the situational contingencies that are involved in the process.

Mathematically, the model can be represented as follows:

$$B \sim BI = [Aact]\, w_o + [(NB)\,(Mc)]\, w_1 \qquad [1]$$

where B = Overt Behavior, BI = Behavioral intention, Aact = attitude toward the act; NB = normative belief; Mc = motivation to comply with the normative belief and w_o and w_1 are empirically determined weights. Consistent with Fishbein's earlier theorizing (Fishbein, 1963), the first component of the model is hypothesized to be a "function of the act's perceived consequences and of their values to the person (Ajzen and Fishbein, 1973)." A act is conceptualized in terms of two distinct components of an expectancy-value model: 1) An individual's belief (Bi) about the probability that the behavior in question will result in outcome i. 2) His evaluation of (or attitude toward) the outcome i.

Taking n to represent the total number beliefs, Aact is represented as follows:

$$Aact = \sum_{i=1}^{n} Bi\ ai \qquad [2]$$

The normative component of the theory (NB) x (Mc) is assumed to reflect the influence of the individual's social environment (e.g., his referent groups expectations) in relation to the behavior in question and his motivation to comply with such perceived normative expectations.

Extending the notion of this concept to a number of different relevant social groups that could conceivably affect the behavior in question, Fishbein (1967, 1972) proposes the following formulation:

$$B\sim BI = [\sum_{i=1}^{n} Bi\ ai]\ w_o + [\sum_{j=1}^{k} NB_j\ (Mc_j)]\ w_1 \qquad [3]$$

where k is the number of such socially relevant referents that could affect the behavior. In a recent paper, Ajzen and Fishbein (1973) note that although the present state of understanding of social normative beliefs is rather limited, they are best viewed as the individual's perception of his referent groups attitude toward his (i.e., the individual's) performing the given behavior (I.e., Aact).

Sheth Model of Attitude Structure and Behavioral Prediction

In the Sheth Model (1971, 1974), behavior [B] has been conceptualized as a function of 1) behavioral intention of the actor with respect to the object [BI], 2) affect towards object [A] based on the actor's degree of satisfaction with respect to the object as result of past exposure to the object. It is believed that such affective tendencies contribute to strengthening of future predispositions toward the object, and 3) unexpected events (UE) that might intervene between the expression of the behavioral intention and the manifestation of the overt behavioral 'act' toward the object.

Insert Figure 1 about here

The model mathematically expressed is as follows:

$$B_t = f(A_{t-n}, BI_{t-n}, UE_t) \quad [4]$$

where B_t = A specific act of behavior manifested by an individual at time t toward an object.

A_{t-n} = Affect toward the object based on past satisfactions derived from exposure to the object.

UE_t = Unexpected events experienced by the individual at the time of overt manifestation of behavior toward the object.

It is presumed that affect and behavioral intentions are uncorrelated with unexpected events, and that occurance of unexpected events at the time of manifestation of behavior can either enhance or inhibit the conversion of affect and behavioral intention into actual behavior. Behavioral intention is hypothesized to be a function of 1) evaluative beliefs about the object; 2) social stereotype about the object as perceived by the individual; 3) anticipated situational factors i,e those that he could anticipate and, therefore, calculate their possible influences on his plans or intentions; and 4) affective tendencies based on his past satisfactory/unsatisfactory experiences with respect to the object. Expressed in the form of a functional relation, behavioral intention in the Sheth (1974) model is represented as follows:

$$BI = f(EB, SS, AS, A) \quad [5]$$

where BI = the individual's plan to behave in a certain way toward the attitude object.

EB = the individual's sets of evaluative beliefs about the attitude object.

SS = the individual's social stereotype beliefs influencing his behavior toward the object.

AS = the individual's anticipation of events at the time of his planned manifestation of behavior toward the object.

and A = the individual's affect toward the object based on patterns of past satisfactions derived from being exposed to the object i,e on reinforced habit toward the object.

With reference to the above formulation, it is suggested that 1) situations may arise when these four factors (EB, SS, AS and A) may in fact act in opposition to one another; and 2) in situations where habit-forming patterns are likely to predominate, the behavioral intention could be determined primarily by affective orientation with respect to the object. In fact, in such cases, substitution of affect in the place of evaluative beliefs may lead to superior prediction.

Evaluative beliefs are conceptualized as serving the instrumental-utilitarian function in the cognitive domain of the individual. Following Katz (1960) and Katz and Stotland's (1959) original formulation, the set of evaluative beliefs are assumed to be multidimensional in nature which would require a dimensional analysis (such as factor analysis) for its operational representation. A profile analysis of the attitude object's salient functional properties as they relate to the needs of the individual is ordinarily called for. In an earlier paper, Sheth (1971) argues that there is no explicit theoretical reason as to why the individual would not retain the distinct multidimensional properties of the evaluative beliefs.

Affect represents the positive or negative predisposition of the individual in relation to treating the object as a goal object. Ordinarily, affect is based on satisfactions derived from past experiences with the object.

Social stereotype is conceptualized in terms of all the factors i,e

socio-economic, demographic and other role-related images of the attitude object that involves the individual's social imagery or connotation of the object. It is presumed that these social imagery or connotation of the object exercise normative influences on the individual as to how he should behave with respect to that object in future points in time. Variables such as age, sex, education, occupational styles, life cycles and styles etc. contribute to the development of social imagery of the object. This stereotype factor is also presumed to be a multidimensional concept which requires a dimensional analysis on a profile of perceptions as they relate to a variety of socially relevant factors.

Anticipated situation factor includes all the relevant activities the individual may engage in at the time of performing the actual behavioral act in question. Occurence of a desirable anticipated situation may enhance the behavioral intention while an undersirable situation would have an adverse effect.

It is presumed that this anticipated situation factor is much more situation dependent and ad hoc than the social stereotype or evaluative belief factors. As a result, one can not possible develop an invariant list of variables as indicators of the anticipated situation factor. Nevertheless, one can determine some generalized contingencies that could realistically be related to behavioral intention. Such indicators could 1) cyclical phenomena such as holidays, vacations, birthdays, schooling, education, etc.; 2) anticipated mobility such as moving to a new neighborhood or to a new job, etc. It is believed that in view of the rising rate of mobility a number of buying decisions may strictly be due to this factor; 3) anticipated financial situation of the decision-maker. This includes

his anticipated incomes and expenditures that may affect his buying intentions.

And finally, in the formulation of behavior, Unexpected Events (UE) are referred to as the antecedent and continguous stimuli that may impinge on the individual at the time of his engaging in the given behavior act. In other words, it refers to all the situational factors that might change the planned course of action of the individual by exercising some directive influences. In buyer behavior, the Unexpected Events factor can be illustrated by the announcement of the sale of a competing brand in the supermarket, which influences the purchase plan of the housewife. More importantly, it is hypothesized that it is the intention to opt for some supposedly more rational choice that the influence of Unexpected Events may change what otherwise would have been an 'act' based upon prior planning and affect.

Multiple Regression Formulation

As noted earlier, the Fishbein Model (1967) can be empirically tested by rewriting it in the form of a multiple regression equation. Thus, taking Behavioral Intention as the dependent variable, we may test the model in terms of its original formulation.

$$BI = Aact\ w_o + (NB \times MC)\ w_1 \qquad [6]$$

The Sheth model (1974) is written in the form as stated earlier, i,e taking Behavioral Intention as the dependent variable, the model is as follows:

$$BI = b_1\ [EB] + b_2\ [SS] + b_3\ [AS] + b_4\ [A] \qquad [7]$$

The scope of the study is limited to the prediction of consumer buying intention only. Our reasons for doing so are as follows:

1) Fishbein's model is limited only to the prediction of behavioral intention i,e, it doesn't specify the nature of variable that impinge or interven between the expression of behavioral intention and the manifestation

of an overt behavioral act. Also, such a procedure is agreeable to the originators of the two models.

2) Data collection is easy only upto the behavioral intention level. Understandably, it is difficult to collect data on each individual's actual behavioral act with respect to the object for a large scale empirical study.

3) Better control in design of the study and its implementation is possible only if behavioral intention is taken as the relevant dependent variable for comparative prediction purposes.

METHOD AND PROCEDURE[2]

Sample Composition

The empirical investigation of the relationships among the various components of the two models is based on the data collected on a sample of 243 respondents. The respondents were housewives and students from the community of Urbana-Champaign, Illinois. A separate analysis of the students and housewives sampled produced identical results for both models supporting previous evidence (Sheth, 1970) that these two groups do not differ significantly with respect to psychological processes although they may differ in their involvement and substantive outcomes with respect to an object.

The Attitude Object: The attitude object selected for the present study was the Pinto car manufactured by the Ford Motor Company Ltd. An indepth interview with twenty-five housewives from the Urbana-Champaign community and twenty-five students from the University of Illinois carried out during the Pilot Study revealed the importance of 'Pinto' as a suitable car for buyers in the socio-economic range of the target population.

Pilot Study: In order to obtain relevant belief items pertaining to the act of buying Pinto, a pilot study was conducted on an independent sample of 40 respondents. Each of the respondents was asked to elicit a number of most salient beliefs about buying a car by asking them "When buying an automobile, what brand characteristics or properties are important to you?". From a frequency count of the responses, the attributes occuring with the greatest frequency were selected for constructing the belief scales. Such a procedure yielded altogether twelve belief items pertaining to the product category under consideration. Similar belief items have been used by other researchers in studies relating to automobile purchase (Alpert, 1971, Spring AMA Proceedings P. 312-16).

Operational Definitions of the Theoretical Constructs: The various constructs in the Fishbein model are operationally defined as follows:

1. Aact - attitude toward the act. The first component of Aact was the B_i component. The concept "my buying Pinto" was rated on a number of seven-point scales ranging from probable to improbable. The specific rating scales used was the following:

My buying Pinto would mean buying an automobile that is economical to operate probable__:__:__:__:__:__:__improbable

Following Glassman and Fishbein (1973), these belief items were especially construed so as to represent a specific cognition with respect to the 'act of buying Pinto' as opposed to the "Pinto" per se.

The ai component was measured by the standard procedure of semantic differential scales. Each ai component was rated on a seven-point good-bad semantic differential scale. An example is as follows:

Buying a car that is economical to operate is good__:__:__:__:__:__:__bad

2. Normative Beliefs (NB's)

Since it is difficult to identify relevant social groups who would exercise potential normative influences on any given individual as far as the act of buying a car is concerned, an alternative procedure was adopted. Such a procedure, often used in other studies pertaining to the use of birth-control contraceptives etc. (e,g Glassman and Fishbein, 1973) is intended to tap the aggregate social normative influences exercised upon the individual by all the relevant groups. The particular scale used was the following:

Others who are important to me think

I should__:__:__:__:__:__:__I should not buy a Pinto

3. Motivation to Comply (Mc's)

Mc's with the normative beliefs was tapped by a procedure directed at the generalized tendencies of an individual to comply with the normative expectations of his relevant social groups. Such a procedure has often been recommended by Fishbein (1972) and his associates i.e., Glassman and Fishbein (1973). The scale tapping such motivational tendency was as follows:

In general I want to do __:__:__:__:__:__:__ In general I don't want to do

What others who are important to me think I should do

4. Behavioral Intention (BI)

Behavioral Intention according to Fishbein's formulation was measured by the use of the following scale:

I would __:__:__:__:__:__:__ I would not buy Pinto

Operational definitions of the various constructs in the Sheth model are as follows:

Evaluative Beliefs (EB's)

The twelve belief items were operationalized in the Sheth model as follows:

1.	PINTO is a luxury car	__:__:__:__:__:__:__	PINTO is an economy car
2.	PINTO has big engine power	__:__:__:__:__:__:__	PINTO has very small engine power
3.	PINTO pollutes environment excessively	__:__:__:__:__:__:__	PINTO pollutes the environment just like any other car
4.	PINTO is 'sporty'	__:__:__:__:__:__:__	PINTO is not 'sporty'
5.	PINTO is expensive to buy	__:__:__:__:__:__:__	PINTO is economical to buy
6.	PINTO is economical to operate	__:__:__:__:__:__:__	PINTO is expensive to operate
7.	PINTO is a very durable car	__:__:__:__:__:__:__	PINTO is only average in durability
8.	PINTO provides good handling	__:__:__:__:__:__:__	PINTO provides poor handling
9.	PINTO is a very safe car	__:__:__:__:__:__:__	PINTO is a very unsafe car
10.	PINTO provides comfortable ride	__:__:__:__:__:__:__	PINTO provides uncomforable ride
11.	PINTO accelerates very well	__:__:__:__:__:__:__	PINTO does not accelerate satisfactorily
12.	PINTO has good resale value	__:__:__:__:__:__:__	PINTO has poor resale value

It is to be noted that the belief items are not drawn to the extreme ends of a continuum i,e they are not necessarily bi-polar in nature. It is argued that evaluations of the belief items pertaining to any act of buying are not carried to their extreme probabilities because such probabilities are hard to find in the real world of consumer behavior (Howard and Sheth, 1969).

Social Stereotypes (SS)

The social stereotype toward the Pinto car was measured in the form of projective type questions. The specific rating scales are reproduced below:

		Can not Judge		
1.	PINTO is meant for young people only	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
2.	PINTO is meant for people only moderate income	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
3.	PINTO is suitable for older people	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
4.	PINTO is a car meant for everybody	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
5.	PINTO is great as a second car in the family	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
6.	Teenagers and College students love PINTO	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
7.	Very rich people would never consider buying a PINTO	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
8.	PINTO is great for a bachelor	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree
9.	Young unmarried women prefer PINTO	☐	Strongly Agree __:__:__:__:__:__:__	Strongly Disagree

Affect (A)

Overall like or dislike toward Pinto was measured in terms of the question constructed as follows:

Please indicate the extent to which you are favorably or unfavorably predisposed toward Pinto.

Most favorable toward Pinto __:__:__:__:__:__:__ Most unfavorable toward Pinto

Anticipated Situation (AS):

The importance of Anticipated Situation factors were measured by invoking in the respondents the possibility of a number of unforseen events (such as moving from the present locality, getting married, birth in the family, etc.) which could conceivably affect their buying intentions. Their subjective estimation of the impact of such situational factors on their behavioral intention were measured by a seven-point scale constructed with 'Not at all conceivable' and 'very much conceivable' at the two ends of the continuum. Three such scales related to personal, buying and financial situations were identified and the subjective estimates of the effect of these factors on Behavioral Intention was obtained. A specific question was as follows:

> Is it conceivable that you might change your intention to buy or not to buy an automobile because of some unforeseen events for example, moving, getting married, birth in the family, unanticipated change in your financial status or deciding to take vacations) you did not anticipate may occur in the next six months?
>
> Not at all conceivable __:__:__:__:__:__:__ Very much conceivable

Behavioral Intention (BI)

As noted earlier in our discussion of the Sheth model, behavioral intention was measured by asking the respondent 'if you were to buy an automobile, how seriously would you consider buying a pinto?'

> Definitely would consider buying a PINTO __:__:__:__:__:__:__ Definitely would not consider buying a PINTO

Thus, in the Sheth model behavioral intention is, at least implicitly, a qualified expression of behavior. Also, the operationalization suggests that behavioral intention is made conditional to the fact that the individual is considering the prospects of buying an automobile.

Use of Multiple Regression in Predictive Validation

In the present analysis, testing of relative predictive efficacy of the two models was carried out in three stages. First, we compare the multiple R's of the models resulting from the regression of the model components on the criterion of behavioral intention. Such a procedure provides us with the results of predictive power of both the models on the criterion of behavioral intention. Second, the multiple R's for each of the models were computed on a randomly drawn sample from the total sample by the split-half method and then checked against the magnitude of multiple R's of each of the models. This method checks both the reliability as well as the stability of regression coefficients for each of the models and gives indication of the variation (if any) due to sampling fluctations. Since in Sheth model factor scores for evaluative beliefs and social stereotypes are utilized in the predictor variable set, principal components analyses were performed on these two sets of scales using the total sample. The factors were then subjected to the criterion of varimax rotation and the factor scores for each individual in the sample were obtained from the rotated factor loadings matrix. These factor scores were kept invariant for all further analyses. Even when the sample was divided for the purposes of predictive as well as cross-validation, the factor scores for each individual were kept invariant.

Finally, we cross validate the magnitude of multiple R's on the validation sample for both the models by using the regression coefficients obtained from the analysis sample. Indeed, if the models are predicting the criterion scores accurately, it is to be expected that the multiple R's obtained from the analysis sample would be identical with that obtained from

the validation sample for both the models. Cross validation is meant to depict the relative stability of regression weights for both the models in a randomly drawn sample from the original sample of respondents.

RESULTS AND DISCUSSIONS

Below we present the results of Fishbein and Sheth models respectively.

Fishbein Model Results

The results of the regression analyses on both the total as well as the analysis sample for the Fishbein model are summarized in Table 1.

Insert Table 1 about here

As is evident from Table 1, (Aact) is found to be a significant predictor of buying intention, while (NBxMc) does not contribute to the variability of BI. Multiple correlations are 0.472 ($p < 0.001$) in the total sample and 0.487 ($p < 0.001$) in the analysis sample, thus showing that these two predictos jointly account for about 23 percent of the total variance in the total sample and about 24 percent of the total variance in the analysis sample.

Using the regression coefficients obtained in the analysis sample to predict the multiple correlation for the validation sample resulted in an overall magnitude of 0.432 ($p < 0.001$). The magnitude of this correlation coefficient compared to that obtained in the analysis sample i,e 0.487 ($p < 0.001$) is only slightly lower, thus demonstrating once again that the overall predictive efficacy of the model does not change appreciably due to sampling fluctuations. In other words, Fishbein model may be expected to account for about 23 percent of variance in buying intention in other representative samples drawn from this total sample.

Sheth Model Results

Results for the Sheth model are presented in three stages. First, we present the rotated factor structure of the evaluative beliefs (EB) and social stereotype (SS) for the total sample. Second, the results of multiple regression analysis of all the predictor variables with the criterion of consumer buying intention are shown. And finally, we present the results of both cross as well as predictive validation studies. An inspection of the Table 2 shows that the first factor could be termed as a factor

Insert Table 2 about here

pertaining to the 'quality' dimension of Pinto as a passenger car. For example, items such as durability of the car, handling, safety, ride, acceleration and resale value load heavily on this factor. The second factor can be interpreted as representing the 'luxuriousness' dimension of Pinto. Items relating to luxury/economy, size of the engine, pollution properties and price load on this factor. The third factor, evidently represents the 'sportyness' dimension of Pinto. Belief items relating to sportyness, economy of operation and handling make up this factor. Next the rotated factor structure of the social stereotype is presented. Various items loading on these factors represent the brand stereotype or imagery that Pinto seems to invoke in the mind of the respondents. For example, items

Insert Table 3 about here

representing the image of Pinto as a car meant for bachelors, young unmarried women, teenagers and collegiates all load heavily on the first factor. We conceptualize this factor as representing the conglomeration of those social cognitions that invoke the social stereotype of a car meant for 'bachelors'.

The second factor seems to represent the social stereotype of Pinto as a car meant for 'people with only moderate income'. And the third factor indicates that Pinto is a car that is stereotyped with respect to less affluent people. Results of multiple regression in the Sheth model are summarized in Table 4. Table 4 shows that altogether four variables are significant in the prediction of consumer buying intention. Affect toward Pinto seems to be the best predictor of buying intention for both the total as well as the analysis sample. Evaluative beliefs representing the 'quality' and 'sportyness'

Insert Table 4 about here

dimensions are also significant predictors, and the anticipated buying situation is also a determinant but in the negative direction. This latter finding, very much conforming to the expectations of the model, implies that the influence of the anticipated buying situation can significantly deter the buying intention.

Multiple correlations of all predictors with the criterion of buying intentions are 0.728 ($p < 0.001$) for the total sample, and 0.749 ($p < .001$) for the analysis sample, explaining about 53 percent of variance in the total and 56 percent of variance in the analysis sample. The magnitude of difference between the correlation coefficients obtained in the analysis sample and that in the total sample is quite low. This empirical finding suggests that the overall predictive efficacy of the model does not change appreciably due to sampling fluctuations. Finally, using the regression coefficients obtained in the analysis sample to predict the multiple correlation for the validation sample resulted in an overall magnitude of 0.665 ($p < 0.001$). The magnitude of this correlation coefficient compared to that obtained in the analysis sample i,e (.749 ($p < 0.001$) is somewhat lower. However, the

predictive validation results are still highly significant.

Since the two models use different number of predictor variables, it is necessary to calculate adjusted R values (coefficient of determination) by using the following formula. Adoption of this procedure would allow us to make a direct comparision of the R^2 obtained for both the models. The formula used was:

$$\text{Adjusted } R^2 = 1 - (1-R^2)\frac{N-1}{N-n}$$

where N = sample size and n = number of predictor variables in the given model.

As pointed out in various tables, the drop in the overall multiple correlation for the Sheth model is not very high - thus demonstrating that this superiority in predictive efficacy of the model can not be attributed to the larger number of variables in the Sheth model.

Comparison of Results of Two Models

The results of the analyses on the two models consistently point to the superiority of the Sheth model in terms of its predictive efficacy. Both the models perform quite satisfactorily when subjected to test of predictive and cross-validations. This indicates that the regression coefficients obtained are quite stable and are not affected by sample size considerations and that the predictive ability is relatively unchanged over different random samples from the same population. However, the Sheth model obtains better correlations at each level of analysis. The superior predictive power of the Sheth model could perhaps be attributed to the following reasons:

Measurement of BI

First, one of the most distinct differences between the two models is in their operationalization and measurement of buying intention. Fishbein

(1967) has argued quite convincingly that behavioral intention should be measured with respect to a specific object and not a generalized group of objects. Thus, buying intention should be measured with respect to the specific brand of a car such as Pinto rather than the generalized product category of 'automobiles'. This point is very significant to the measurement of buying intention. On the other hand, Sheth goes one step further and recommends that the buying intention toward a specific object should be further qualified with respect to the n-ed or motivation level of the consumer. In the Sheth model, therefore, the buying intention is measured not only with respect to a specific brand but also is made conditional on the fact that the respondent buys the product class. Thus, the respondent expresses his intention to buy the Pinto assuming that he is considering buying an automobile. The Sheth model, therefore, recognizes the fact that buying intentions can be predicted from attitudinal, social and other variables only if the buyer has any need for the object. To examine the extent to which the different BI scales affect the results, the analyses were repeated using the Sheth BI scale on the Fishbein model and vice versa. These analyses produced almost insignificant changes in the results pointing

Insert Table 5 and 6 about here

to the fact that there are perhaps other important reasons for the difference in the predictive power of the two models.

Variables Incorporated

Second, the Sheth model incorporates certain variables which are not recognized in the Fishbein model. For example, both Affect toward the object and Anticipated Situation, which are significant predictors of BI in the Sheth model, are not considered in the Fishbein model. Further, though not directly relevant to this study, the Sheth model gives due recognition to

to unexpected events that might intervene between BI and behavior. The fact that Affect toward the object and one of the anticipated situation variables did come out as significant predictors in the Sheth model leads us to believe that they are necessary for a better model of attitude-behavior relationship.

Operationalization of Constructs

Third, whereas in the Fishbein model the attitude toward the act is a composite score, obtained by summing over the products of B_i and a_i, the Sheth model's operationalization of the same construct is accomplished through the underlying dimensions of the evaluative beliefs by factor analysis. The disadvantages of the summation approach have been pointed out by several researchers (Day 1972, Sheth 1974). At least in the area of consumer psychology, there is still a controversy as to whether both components (B_i and a_i) are necessary for measuring consumer attitudes toward a product category. The summation approach assumes that positive and negative beliefs and importances cancel each other out linearly (i,e summate) and simplify the cognitive structure. Such an assumption need not necessarily be true.

On the other hand, Sheth's approach is based on the notion that the consumer retains a profile of assessment of the object by means of certain underlying dimensions of evaluative beliefs. The recognition of the multidimensionality of the cognitive structure is, thus, a distinct advantage of the Sheth model. The same argument holds in the case of the social variables considered by the two models. The factor analytic approach adopted by Sheth seems superior to the summation of (NB x MC) adopted by Fishbein. It seems reasonable to argue that with reference to poor predictive ability of social-context related variables in both the Fishbein as well

as in the Sheth model, it seems reasonable to assume that Pinto is probably a universal car. What this means is that homogeneity in the sample with respect to life cycle, socio-economic status, occupational styles have also reduced the social imagery of the brand. Such a reduction in social imagery connotation of Pinto has reduced its contribution to intention of buying 'the Pinto'.

IMPLICATIONS FOR FUTURE RESEARCH

These are several implications of the results of this study. Perhaps the most important one is the reaffirmation of the views expressed by several researchers that attitude toward the object or act are not necessarily the major determinants of behavioral intention (Wicker 1969, Sheth and Raju 1972). In fact, the current trend of research (Ehrlich 1969) in this area has been directed at identifying appropriate moderator variables that could conceivably affect the relationship. A more recent review (Liska, 1974) almost conclusively shows the importance of multivariate conceptualization in order to establish viable attitude-behavior research.

But it would not be sufficient to merely identify the intervening variables. Systematic research is also needed to:

1) operationalize these variables and develop scales to measure them.
2) incorporate them in formal attitudinal models.
3) compare the different attitudinal models on relevant criteria in a variety of situations.

Though this study by no means addresses to all the above issues, it is at least a step in the direction of comparing two distinct conceptual models of attitude structure in terms of their relative efficacy in the prediction of buying intentions by using the criteria of predictive and cross-validation. It is hoped that rigorous validation studies on the existing attitude models

would reveal their respective strengths and weaknesses-thus extending our understanding of the role of attitudes in buyer behavior.

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Footnotes

1. Requests for reprints and further details should be sent to Professor J. N. Sheth, Department of Business Administration, University of Illinois, Urbana, Illinois 61820.

2. We thank Professor Martin Fishbein of the Department of Psychology for wording and Scale Construction of his model.

Figure I

A Conceptual Theory of Attitude Structure and Attitude-Behavior Relationship

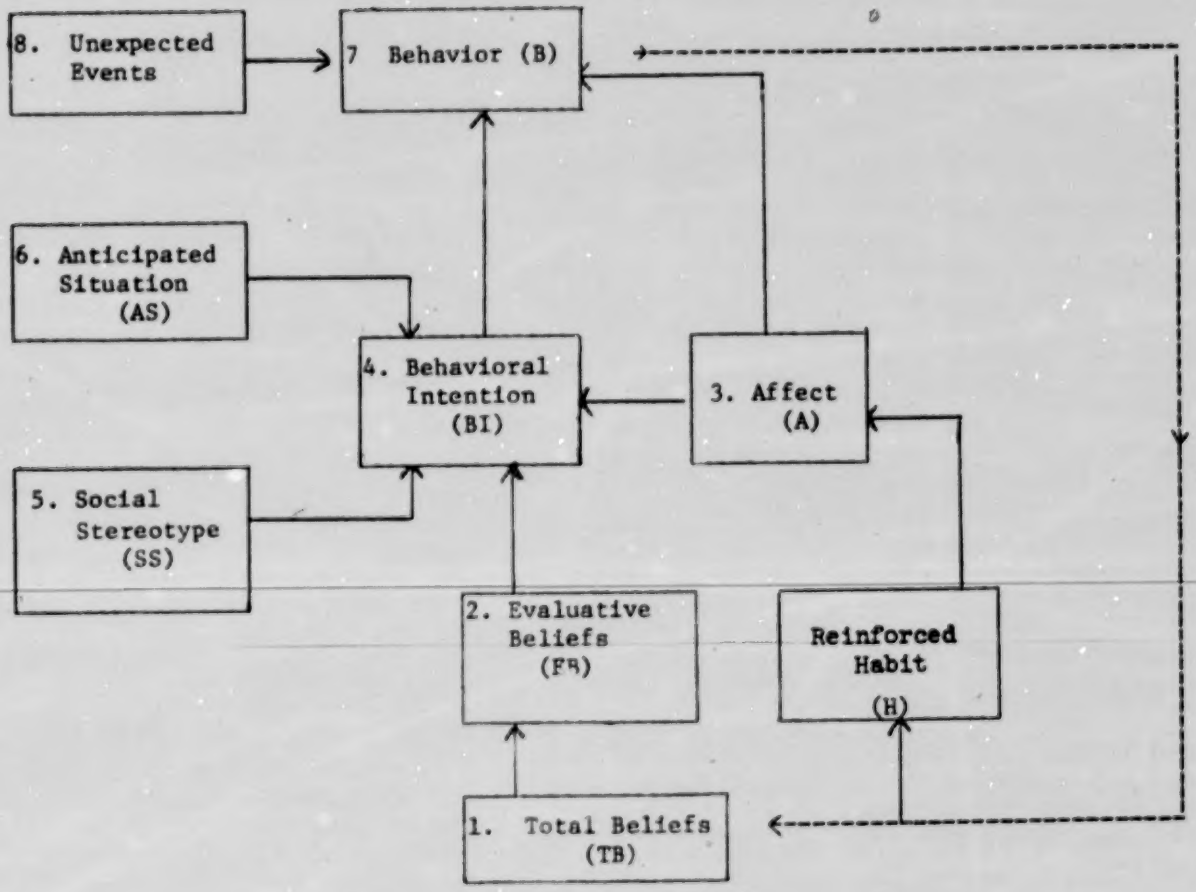

TABLE I

Fishbein Model Results on Total Sample and Analysis Sample

Predictor Variables	Total Sample N=243		Analysis Sample N=124	
	Beta Wt.	Std. Error	Beta Wt.	Std. Error
$A_{act} = \Sigma B_i a_i$	0.467***	0.057	0.485***	0.079
(NBxMc)	-0.037	0.057	-0.043	0.079
Multiple Correlation (R)	0.472***		0.487***	
R^2	0.223		0.237	
Adjusted R^2	0.220		0.231	
F ratio	34.318		18.823	
Std. Error of Estimate	1.594		1.614	

* P< 0.05
** P< 0.01
*** P< 0.001

TABLE 2

Rotated Factor Structure of Evaluative Beliefs on Total Sample (N=243)

Items	Factor I	Factor II	Factor III	h^2
1. Luxury/Economy	-0.077	0.838	0.160	0.733
2. Big/Small Engine	0.119	0.734	0.260	0.621
3. Pollution	0.064	0.723	-0.066	0.531
4. Sportyness	0.035	0.176	0.847	0.749
5. Expensive/Economical to buy	0.118	0.680	0.018	0.476
6. Economical to operate	0.100	-0.608	0.400	0.538
7. Durability	0.731	0.100	-0.103	0.555
8. Good/Poor handling	0.605	-0.179	0.484	0.632
9. Safety	0.827	0.071	0.037	0.691
10. Ride	0.828	0.047	0.048	0.691
11. Accleration	0.648	0.191	0.216	0.503
12. Resale Value	0.689	-0.097	0.038	0.486
Sum of h^2				7.207

Total Variance Explained = 60.058

TABLE 3

Rotated Factor Structure of Social Stereotype Beliefs on Total Sample (N=243)

	Items	Factor I	Factor II	Factor III	h^2
1.	PINTO is mean for young people only	0.146	0.763	0.146	0.625
2.	PINTO is meant for people with moderate income	0.118	0.615	0.095	0.401
3.	PINTO is suitable for older people	0.092	-0.657	0.095	0.450
4.	PINTO is a car meant for everybody	0.180	-0.698	-0.106	0.531
5.	PINTO is great as a second car in the family	0.651	-0.084	0.102	0.442
6.	Teenagers and College students love PINTO	0.747	0.080	-0.220	0.613
7.	Very rich people would never consider buying a PINTO	0.053	0.178	0.867	0.786
8.	PINTO is great for a bachelor	0.568	0.012	-0.484	0.557
9.	Young unmarried woman prefer PINTO	0.784	0.014	0.113	0.628
Sum of h^2					5.032

Total Variance Explained = 55.907

TABLE 4

SHETH MODEL RESULTS ON TOTAL SAMPLE AND ANALYSIS SAMPLE

Predictor Variables	Total Sample (N=243)		Analysis Sample (N=124)	
	Beta Wt.	Std. Error	Beta Wt.	Std. Error
Evaluative Belief (Factor I)	0.121*	0.054	0.267**	0.080
Evaluative Belief (Factor II)	-0.016	0.046	0.042	0.063
Evaluative Belief (Factor III)	0.128**	0.047	0.170*	0.069
Social Beliefs (Factor I)	-0.005	0.051	-0.035	0.072
Social Beliefs (Factor II)	-0.017	0.047	0.032	0.065
Social Beliefs (Factor III)	-0.024	0.047	-0.051	0.071
Affect Toward Object	0.483***	0.058	0.386***	0.088
Anticipated Situation (Personal)	0.039	0.047	0.037	0.068
Anticipated Situation (Buying)	-0.245***	0.051	-0.239**	0.070
Anticipated Situation (Financial)	-0.049	0.046	-0.069	0.064
Multiple Correlation (R)	0.728***		0.749***	
R^2	0.530		0.561	
Adjusted R^2	0.512		0.526	
F ratio	26.148		14.455	
Std. Error of Estimate	1.384		1.338	

* $P < 0.05$
** $P < 0.01$
*** $P < 0.001$

TABLE 5

Fishbein Model Results with Sheth Behavioral Intention Scale

Predictor Variables	Total Sample N=243		Analysis Sample N=124	
	Beta Wt.	Std. Error	Beta Wt.	Std. Error
Aact = $\Sigma B_i a_i$	0.464***	0.057	0.440***	0.081
(NBxMc)	-0.121*	0.057	-0.777	0.081
Multiple Correlation (R)	0.489***		0.448***	
R^2	0.239		0.200	
Adjusted R^2	0.236		0.194	
F ratio	37.649		15.164	
Std. Error of Estimate	1.732		1.745	

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

TABLE 6

SHETH MODEL RESULTS USING FISHBEIN'S
BEHAVIORAL INTENTION SCALE

Predictor Variables	Total Sample (N=243)		Analysis Sample (N-124)	
	Beta Wt.	Std. Error	Beta Wt.	Std. Error
Evaluative Belief (Factor I)	0.157**	0.057	0.316***	0.080
Evaluative Belief (Factor II)	-0.031	0.049	0.026	0.063
Evaluative Belief (Factor III)	0.094	0.050	0.115	0.069
Social Beliefs (Factor I)	0.047	0.054	0.008	0.072
Social Beliefs (Factor II)	0.019	0.049	0.034	0.065
Social Beliefs (Factor III)	-0.028	0.050	-0.019	0.071
Affect Toward Object	0.980***	0.061	0.440***	0.088
Anticipated Situation (Personal)	-0.005	0.050	0.012	0.067
Anticipated Situation (Buying)	-0.139	0.054	-0.118	0.070
Anticipated Situation (Financial)	0.030	0.049	-0.004	0.064
Multiple Correlation (R)	0.687***		0.751***	
R^2	0.472		0.564	
Adjusted R^2	0.452		0.526	
F ratio	23.732		14.644	
Std. Error of Estimate	1.336		1.262	

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

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